A.D. 1822 . . . . . N° 4744.

SPECIFICATION

OF

GEORGE RICHARDS.

GRATES, STOVES, FURNACES, &c.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

PUBLISHED AT THE QUEEN'S PRINTING OFFICE, EAST HARDING STREET,

NEAR FLEET STREET.

1854.

A.D. 1822 . . . . . N° 4744.

Grates, Stoves, Furnaces, &c.

RICHARDS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE RICHARDS, of Truro, in the County of Cornwall, Architect, send greeting.

WHEREAS His most Excellent Majesty King George the Fourth, did, by His Letters Patent under the Great Seal of His United Kingdom, bearing date at Westminster, the Twenty-sixth day of December, 1822, in the third year of His reign, give and grant unto me, the said George Richards, my exors, admors, and assigns, His especial licence, full power, sole privilege and authority, that I, the said George Richards, my exors, admors, and assigns, during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, and also in all His Majesty's Colonies and Plantations abroad, my Invention of "CERTAIN IMPROVEMENTS IN GRATES, STOVES, FURNACES, AND OTHER INVENTIONS FOR THE CONSUMPTION OF FUEL, AND IN THE FLUES CONNECTED WITH THEM, WHEREBY THEY ARE RENDERED MORE SAFE, AND THE SMOKE PREVENTED FROM RETURNING INTO THE ROOMS IN WHICH THEY ARE PLACED; AND ALSO FOR AN IMPROVED APPARATUS FOR CLEANING THE SAME;" in which said Letters Patent there is contained a proviso that if I, the said George Richards, shall not particularly describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be inrolled in His Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent, and all liberties and advantages whatsoever thereby granted, shall utterly cease, determine, and become void, as in and by the same, (relation being thereunto had), will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said George Richards, do hereby declare that the nature of my said Invention, and the manner the same is to be performed, are particularly described and ascertained in and by the following description thereof, that is to say :—

I make all kinds of grates and stoves to fix into complete metallic fire-places or cases, which I also make to be lodged into the apertures or chimneys made for that purpose, leaving a vacancy behind the back part of two inches or more (which vacancy or space I term a rarefying box), and may be formed by a thin iron back annexed to the iron case, or by being truly formed of the brickwork and strongly plastered over before the said metalic fire-place is fixed. I also make to these fire-places metallic inner and outer hearths, instead of marble or any other material; my improvements consists of their annexation, the inner sunk below the outer to allow of a dust or ashes vacuity, with a moveable grate or perforated metalic screen over it, and above the grates at a proper height I make a regulating valve, so constructed that when the cold atmospheric air press down the chimney flue, from eddy winds or any other local cause which may prevent the ascension of the smoke, it may be conducted into the rarefying box, and its ill effects be there destroyed, instead of finding its way into the room. I also make a door or valve at the bottom of the metallic back, to discharge the soot when the flue is swept or cleaned. I also make the flues of all chimneys either square or cylindrical of wrought or cast metal in parts, with tye straps for fixing them, and to be connected to the regulating valve or fire-place, and stand one over the other at their meetings or joints, in convenient lengths, shapes, and sizes agreeable to local positions and circumstances. These flues may be fixed or walled into any material, whether cobb brick or stone (or with the metallic back may be carried up to any height, between wood carcased divisions, with the most permanent stability and security) in the building as near each other as possible, or may be extended at any distance, and for the vanes and apparatus of smoke jacks are to be prepared accordingly. Their tops or stems issuing above roofs or walls may be either finished in a neat, tasty architectural manner with metal or any other material. I also make kitchen ranges or apparatus for cooking and all other kinds of grates and stoves on an improved principle; the two horizontal bars at bottom and top, or occasionally two horizontal bars at bottom to form the segment of a circle, or any other pretty curve upwards, so that from either heat or cold, if contraction and expansion take place, the body of the grates may never sink down; the whole of the other bars in front of the grates, I make and place them vertically, either of wrought or cast metal, to be made hollow with receiving and discharging atmospheric vents, or solid. I also make kitchen ranges or cooking

apparatus with a sliding oven, boiler, or hot closet to regulate the length of the fire, and which are to be either heated from the kitchen fire or from separate fire-places, to have no fall-down bar; but when the fire is to be brought to its smallest standard, to be reduced in height by a moving or sliding bottom, which sliding bottom I make to reduce the fire-places of all grates and stoves to have an atmospheric vent in the back, where no oven, hot closet, or boiler is made to slide. The vertical ranges may be made with sliding cheeks on a new principle, the top of the boiler and oven to serve as hot plates, and a plate also to slide, or hang, or turn down over the fire-place, as a hot plate with different culinary conveniences for boiling, stewing, and steaming; in the back part, spit hooks to be regulated to suit the different joints or meat to be roasted, with slides, screws, springs, or studs. I also make concave metallic roasting hasteners on an entire new principle, so as they may be connected with the grates, and be put in their position and removed out of it to allow the dripping of the meat with the greatest facility and adroitness. I also make the fenders to the ranges, to be secured to the inner hearths with slides, studs, screws, or springs. I also make the toasting racks to be formed with swing brackets. I also make the whole of the kitchen apparatus for cooking and vertical ranges &c. with or without the metallic fire-place, or metallic inner and outer hearths. I also make stoves of all kinds and all shapes with vertical bars, and of Gothic and other open devices in their bars in front, with their top and bottom front bars having a handsome and circular turn upwards, and with their inner and outer hearths of metal, the latter polished or japanned, and finished with different devices, to have atmospheric vent holes or gratings in their backs of a cylindrical form, and boss valves or vent holes in their front ornaments, and the same in their sides, to admit a free communication of atmospheric air to the fire. I also make a brass wire or other metallic fire screen to have a groove or rising on the inner hearths in an elliptical form to embrace the lower parts of the screen, which by a worm, bent wheel, or other mechanism, the parts are to be brought forward and backward to meet in the centre. I also make metallic fenders of different devices to be secured to the inner hearths either with slides, studs, screws, or springs. I also contrive the fire utensils with a stepping in the outer hearth, and a rest connected with the fender to preserve them in an independant vertical position. I also make pokers with a moving fulcrum to suit the vertical grates for stirring the fire. I also make all kinds of stoves with vertical bars with or without the metallic fire-place or metallic inner or outer hearths. I also make furnaces with their fire-places, flues, and stops of cast iron, whereby the fire is detained beneath their bottoms and all round close to the sides of the boilers until the whole strength of the combustion of the fuel is quite exhausted this improved appli-

cation of a metallic furnace for brewing, sugar refining, for distilling, and every other purpose where fuel is applied under any metallic vessel for a boiling fluid, is of the first importance; the fire door to have a lining on the inside to prevent the chilling action of the atmospheric air; this lining can be removed at any time without injuring the door or metal frame, and door to hang close to the ash-pit to regulate the air to the fire-place, and to check it from boiling over suddenly; apertures left with valves or covers for completely cleaning out the condensed smoke without the expense of taking out the boiler. I also make a stop valve in the flue to be closed to prevent the current of air from increasing the fire when the fluid is boiling or when the soot may be clearing from the flue. I also make a door for conveying the steam from a domical or other cover over the boiler into the flue of the furnace. I also make an improved apparatus for sweeping and cleaning all kinds of flues of chimnies, furnaces, breweries, distilleries, hot-houses, wall flues of gardens, or any other ever so large or small dimensions, or of ever so crooked or intricate construction from below. I make a metallic case to suit or fit chimney pot or brick, or other substance; this case contains an open metallic cylinder with a projecting oanch on its outer top edge; the use of this is to prevent the operation of eddy winds from an easy entry (after rebounding against the pot) into the flue; the cylinder is made to turn easy on its pivots, and the case I fix in a secure manner to the top of the chimney; or if a direct horizontal flue, or a gradual acclivity or otherwise, I then fix it to the most distant or farthest part of it; this being done with a whalebone needle, made with brass ferrules, and jointed in short lengths with a swivel friction roller at the fore or lower end, it is put down the flue, which however crooked or intricate, this needle will reach the bottom or extreme distance, to which a small line is fixed; the line from the bottom end is then taken off, whilst the line on the top is held by the person who sent down the needle; the needle is then drawn up the chimney and folded together in its joints, and the person above puts a strong well-made metallic chain properly over the cylinder, and securely fastens the both ends to the line or cord; the person below then pulls it down; if the chimney flue is very foul, the soot vetrified as a hard substance, it will be necessary to annex the scraper to the chain. I make the scraper so as it may not turn in the flue, or scrape when it is ascending. I make scrapers to scrape only one side at the time, and spring and other kinds of scrapers to scrape all sides at once; a hole is made in the scraper to secure it to the chain, and another hole to admit the passing of the chain through it easily; the both ends of the chain are then firmly united by screwing, clasping, or keying together, and the scraper is sent up and down the flue until all the collected obstructions are finally removed; the scraper is then taken off the chain, and I make a square or

cylindrical oblong hair or whole whalebone or any other flexible material, brush, which is annexed to the chain in like manner with the scraper, and a hole bored through the block sufficiently large for the chain to pass up and down through it easily (the scrapers and the brushes must be made to suit the different sized flues they are to be applied to, and a smaller brush will be necessary for sweeping the chimney pots than for large flues, although one scraper and one brush will clean ten thousand flues of the same size, or one of each for a house will serve for a great number of years); when from below the brush is moved up and down with the greatest facility until the flue is made perfectly clean, when the brush is to be taken off from the chain, and with the scraper to be laid by in a dry place, the chain is then to be hung up on a wire hook above the lower part of the flue. In case of a fire happening in the flue, I make a swab of the thrums, or any like material, and secure them to a cylindrical block, which swab is to be made completely wet by immersion in water, and then to be annexed to the chain in like manner as the brush and scraper, and to be run up and down in the flue in like manner until the whole fire is extinguished. Every house should be provided with a swabber of this kind. I also make a Chinese or other shaped cap of metal, earthenware, or other material, to compleatly screen the metallic open cylinder and chain from rain, hail, or snow; and also to prevent such from descending into the flue, and to prevent the effects of eddy or other currents of atmospheric air or winds from finding their way down into the flue. I also make wood frames with studs in the part that lays on the mantleshelf, and the other parts of an elliptical or circular form in joints to suit any sized chimney, with moveable supporters or legs to suit any height of mantlepiece; the wood frame I secure to the mantlepiece with wood or metallic hand screws or clamps. I also make chimney cloths to lay in front of the chimney on the hearths and carpet, and another to be hooked to the studs of the wood to fall down in front of the fire-place, to have two sleeves or cuffs to secure the person whose hands are to be thrust through them to perform the operation of scraping and sweeping the flue from soot or dust; another cloth I make to be hooked to the studs of the wood, which is to fall down to the floor over the wood frame, and to be closely secured by buttons or otherwise during the operation of cleaning the flue and taking up the soot, so that not even a particle of dust can escape to soil or injure any part of the furniture of a room, however valuable or exquisitely finished it may be.

In witness whereof, I, the said George Richards, have hereunto set my hand and seal, this Twenty-sixth day of June, One thousand eight hundred and twenty-three.

GEORGE (L.S.) RICHARDS.

Richards' Improvements in Grates, Stoves, Furnaces, &c.

STEPHEN.

AND BE IT REMEMBERED, that on the Twenty-sixth day of June, in the year of our Lord 1823, the aforesaid George Richards came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

Inrolled the Twenty-sixth day of June, in the year of our Lord, One thousand eight hundred and twenty-three.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1854.